Future perspectives of the UNESCO MaB Programme in view of blue carbon ecosystems
World Wars I. and II. were so immensely devastating and caused so much human loss, tragedies and pain, that nations decided to form the United Nations mandated to minimize conflicts including wars, and to foster peace.

In the same year (1945) UNESCO was formed to assist fostering peace on the platforms of education, science and culture, because political agreements alone are not enough to build long-lasting peace. It was understood and agreed that the intellectual and moral solidarity between nations and people is an absolutely essential element for peace.

UNESCO aims building peace in the minds of men and women.
What is peace, and what has this to do with UNESCO?

The Preamble to the Constitution of UNESCO declares:

‘Since wars begin in the minds of men and women, it is in the minds of men and women that the defenses of peace must be constructed’.

UNESCO works to create the conditions for dialogue among civilizations, based upon respect for shared values. With multiple current crises ongoing simultaneously, including wars, the Covid-19 pandemic, climate change, biodiversity loss, pollution, the energy crisis, the importance of peace for all of us cannot be under-estimated. Peace is an essential element for human survivability and concerns all of us.
The Man and the Biosphere Programme (MaB), is one of UNESCO’s most important initiatives. MaB supports the identification, establishment and management of Biosphere Reserves.

- The MAB programme is an intergovernmental scientific programme that aims to establish a scientific basis for enhancing the relationship between people and their environments.
- It combines the natural and social sciences with a view to improving human livelihoods and safeguarding natural and managed ecosystems.
- It promotes innovative approaches to economic development that are socially and culturally appropriate and environmentally sustainable.
- Biosphere Reserves are places to apply, test and demonstrate best practices for human living in harmony with nature. They aim to enhance nature conservation, reduce the environmental footprint and keep the ecological carrying capacity of our natural ecosystems intact.
There are numerous Biosphere Reserves that conserve Blue Carbon Ecosystems, including mangroves, globally:

Biosphere Reserves are places for the conservation, restoration, scientific research, and testing, applying and demonstrating to the international community best practices for human living in harmony with nature. They aim to enhance nature conservation, reduce the environmental footprint and keep the ecological carrying capacity of our natural ecosystems intact.
Blue Carbon Ecosystems?

- The scientific community uses this term since > 10 years.

- No clarity yet, on what exactly is a *blue carbon ecosystem*.

- Seagrass beds, mangroves, salt marshes, and sabkhat in most cases are blue carbon ecosystems (or have been in the past) – however, we need to know much more about their carbon sequestration capacity which is patchy and diverse.
Biosphere Reserves and the MaB Programme should assist raising awareness of the importance of these ecosystems and, via science-education, enhance the knowledge of the general public.
Gulf of Mannar

Established in 2001, this BR in Tamil Nadu, India, with its coral reefs, seagrass beds and mangroves, is considered one of the world’s richest marine ecosystems.
Established in 2001, the Sundarbans Biosphere Reserve in West Bengal is the largest delta in the world and it hosts the biggest stand-alone mangrove forest globally.
Mangrove ecosystems of Japan

Japan has a total mangrove forest coverage of at least 7.4 km².

Mangroves in Japan are the most northerly across the Indo-West Pacific biogeographical region. The International Society for Mangrove Ecosystems (ISME) is located in Okinawa. ISME was established in 1990, and took over mangrove projects that were initiated by UNESCO and UNDP.

UNESCO-designated sites in Japan

- 10 Biosphere Reserves
  - Mount Hosen
  - Mount Daisen, Mount Omine, and Dogashima
  - Shigi Highland
  - Tatsuruma and Reishinmori Jima
  - Iyo
  - Ainokura-Islands
  - Shikoku-Island
  - Sado
  - Koshiki-Island
  - Koshiki-Island

- 9 Global Geoparks
  - Aka UGGp
  - Hino UGGp
  - Kirishima-Geopark
  - Mihoro UGGp
  - Ono UGGp
  - Sen’In Kagoshima UGGp
  - Tosa-Ugosaka UGGp
  - Mino-Ugosaka UGGp

- 23 World Heritage Sites
  - of which 4 are natural sites:
    - Ogataque Islands
    - Shikoku-Island
    - Sado
    - Tatsuruma

Japan

10 Biosphere Reserves

ISME

Potentially a country that could support coastal biosphere reserves and the floating mangroves concept.
The Marshall Islands is one of the Small Island Developing States (SIDS).

Many SIDS countries have mangrove ecosystems (35 out of 39 SIDS countries).

Some of them > 40% of their territory.
Tanzania has about 1,287 km² of mangroves. Africa as a whole, in many of its 54 countries, has vast areas of blue carbon ecosystems in the east, the southern central parts, and the west. The northern parts are rich in seagrass beds and salt marshes.
Many Arab countries have mangroves, tolerant of seawater, even though they have marginal rainfall rates.
Asia & the Pacific

The vast region of Asia & the Pacific has most mangroves in terms of area coverage and diversity. Indonesia has globally the largest coverage.
Europe & North America

The only country in this region that has mangroves is the USA, with an excellent record of scientific research. However, many other countries in the region have vast salt marshes, seagrass beds, macro-algal reefs, and other BCEs.
Brazil, Mexico and several other countries in Central and Latin America have vast areas of mangroves.
Biosphere Reserves: perspectives for blue carbon

- They are the places where we can research and test atmospheric and oceanic carbon sequestration.
- They are places for blue carbon conservation.
- Restoration.
- Scientific Research.
- Offsetting habitat loss.
- Community participation.
- Developing best practices for sustainable ecosystem services.
- Places for private sector support with Governments and communities.
You are invited to participate in the MaB Programme to identify, establish and manage new Biosphere Reserves and carry out scientific research and test and apply best practices as solutions for ongoing contemporary crises.
Finally

Thank you and enjoy the slide show

Symbolizing the importance of blue carbon ecosystems to mitigate climate change